What is claimed is:

1. An electron beam depicting method for depicting a predetermined pattern on a substrate, comprising the steps of:

acquiring shape data of said predetermined pattern;

generating a first input signal for deflecting an electron beam emitted from an electron gun in a main-scanning direction, and a second input signal for deflecting said electron beam emitted from said electron gun in a sub-scanning direction, based on said shape data of said predetermined pattern;

adjusting an alternating bias signal, having a specific frequency, according to said shape data of said predetermined pattern;

superposing said alternating bias signal on said second input signal; and

deflecting said electron beam emitted from said electron gun in said sub-scanning direction according to said second input signal on which said alternating bias signal is superposed, while scanning said electron beam emitted from said electron gun by deflecting it in a main-scanning direction.

2. The electron beam depicting method of claim 1,

wherein an amplitude of said alternating bias signal is adjusted in response to said shape data of said predetermined pattern in said adjusting step.

3. The electron beam depicting method of claim 1,

wherein a structure of said predetermined pattern includes a plurality of edge portions.

4. The electron beam depicting method of claim 1,

wherein said predetermined pattern is a diffraction structure constituted by a plurality of blazed diffraction gratings; and

wherein said alternating bias signal is adjusted corresponding to a sloped area and an edge portion of each of said blazed diffraction gratings in said adjusting step.

5. The electron beam depicting method of claim 4,

wherein an amplitude of said alternating bias signal is adjusted to a first amplitude value in a vicinity of said edge portion, while said amplitude of said alternating bias

signal is adjusted to a second amplitude value in a vicinity of a center of said sloped area; and

wherein said first amplitude value is smaller than said second amplitude value.

6. The electron beam depicting method of claim 1, further comprising the step of;

controlling a scanning pitch in said sub-scanning direction of said electron beam in response to an amplitude of said alternating bias signal.

7. The electron beam depicting method of claim 1,

wherein a depicted surface of said substrate is a curved surface.

8. A method for manufacturing a mother die of a metallic mold utilized for molding an optical element, comprising the steps of:

forming a resist film on a substrate;

acquiring shape data of a predetermined pattern;

generating a first input signal for deflecting an electron beam emitted from an electron gun in a main-scanning direction, and a second input signal for deflecting said

electron beam emitted from said electron gun in a sub-scanning direction, based on said shape data of said predetermined pattern;

adjusting an alternating bias signal, having a specific frequency, according to said shape data of said predetermined pattern;

superposing said alternating bias signal on said second input signal;

scanning said electron beam emitted from said electron gun by deflecting it in a main-scanning direction, while scanning said electron beam, emitted from said electron gun, by deflecting it in said sub-scanning direction according to said second input signal on which said alternating bias signal is superposed, so that said electron beam irradiated onto said substrate depicts said predetermined pattern; and

developing said resist film on said substrate depicted in said scanning step, so as to acquire said mother die having a predetermined structure.

9. The method of claim 8, further comprising the step of:

etching said substrate developed in said developing step.

10. A mother die of a metallic mold utilized for molding an optical element, said mother die being manufactured by a method comprising the steps of:

forming a resist film on a substrate;

acquiring shape data of a predetermined pattern;

generating a first input signal for deflecting an electron beam emitted from an electron gun in a main-scanning direction, and a second input signal for deflecting said electron beam emitted from said electron gun in a sub-scanning direction, based on said shape data of said predetermined pattern;

adjusting an alternating bias signal, having a specific frequency, according to said shape data of said predetermined pattern;

superposing said alternating bias signal on said second input signal;

scanning said electron beam emitted from said electron gun by deflecting it in a main-scanning direction, while scanning said electron beam, emitted from said electron gun, by deflecting it in said sub-scanning direction according to said second input signal on which said alternating bias signal is superposed, so that said electron beam irradiated onto said substrate depicts said predetermined pattern; and

developing said resist film on said substrate depicted in said scanning step, so as to acquire said mother die having a predetermined structure.

11. The mother die of claim 10, said method further comprising the step of:

etching said substrate developed in said developing step.

12. A method for manufacturing metallic mold utilized for molding an optical element, comprising the steps of:

forming a resist film on a substrate;

acquiring shape data of a predetermined pattern;

generating a first input signal for deflecting an electron beam emitted from an electron gun in a main-scanning direction, and a second input signal for deflecting said electron beam emitted from said electron gun in a sub-scanning direction, based on said shape data of said predetermined pattern;

adjusting an alternating bias signal, having a specific frequency, according to said shape data of said predetermined pattern;

superposing said alternating bias signal on said second input signal;

scanning said electron beam emitted from said electron gun by deflecting it in a main-scanning direction, while scanning said electron beam, emitted from said electron gun, by deflecting it in said sub-scanning direction according to said second input signal on which said alternating bias signal is superposed, so that said electron beam irradiated onto said substrate depicts said predetermined pattern;

developing said resist film on said substrate depicted in said scanning step, so as to acquire a mother die having a predetermined structure; and

applying an electroforming processing to said mother die having said resist film developed in said developing step, so as to form said metallic mold on which said predetermined structure is transferred.

13. The method of claim 12, further comprising the step of:

etching said substrate developed in said developing step.

14. A metallic mold utilized for molding an optical element, said metallic mold being manufactured by a method comprising the steps of:

forming a resist film on a substrate;

acquiring shape data of a predetermined pattern;

generating a first input signal for deflecting an electron beam emitted from an electron gun in a main-scanning direction, and a second input signal for deflecting said electron beam emitted from said electron gun in a sub-scanning direction, based on said shape data of said predetermined pattern;

adjusting an alternating bias signal, having a specific frequency, according to said shape data of said predetermined pattern;

superposing said alternating bias signal on said second input signal;

scanning said electron beam emitted from said electron gun by deflecting it in a main-scanning direction, while scanning said electron beam, emitted from said electron gun, by deflecting it in said sub-scanning direction according to said second input signal on which said alternating bias signal is superposed, so that said electron beam irradiated onto said substrate depicts said predetermined pattern;

developing said resist film on said substrate depicted in said scanning step, so as to acquire a mother die having a predetermined structure; and

applying an electroforming processing to said mother die having said resist film developed in said developing step, so as to form said metallic mold on which said predetermined structure is transferred.

15. The metallic mold of claim 14, said method further comprising the step of:

etching said substrate developed in said developing step.

16. A method for manufacturing an optical element, comprising the steps of:

forming a resist film on a substrate;

acquiring shape data of a predetermined pattern;

generating a first input signal for deflecting an electron beam emitted from an electron gun in a main-scanning direction, and a second input signal for deflecting said electron beam emitted from said electron gun in a sub-scanning direction, based on said shape data of said predetermined pattern;

adjusting an alternating bias signal, having a specific frequency, according to said shape data of said predetermined pattern;

superposing said alternating bias signal on said second input signal;

scanning said electron beam emitted from said electron gun by deflecting it in a main-scanning direction, while scanning said electron beam, emitted from said electron gun, by deflecting it in said sub-scanning direction according to said second input signal on which said alternating bias signal is superposed, so that said electron beam irradiated onto said substrate depicts said predetermined pattern;

developing said resist film on said substrate depicted in said scanning step, so as to acquire a mother die having a predetermined structure;

applying an electroforming processing to said mother die having said resist film developed in said developing step, so as to form a metallic mold onto which said predetermined structure is transferred; and

molding said optical element having said predetermined structure by means of said metallic mold.

17. The method of claim 16, further comprising the step of:

etching said substrate developed in said developing step.

18. An optical element manufactured by a method comprising the steps of:

forming a resist film on a substrate;

acquiring shape data of a predetermined pattern;

generating a first input signal for deflecting an electron beam emitted from an electron gun in a main-scanning direction, and a second input signal for deflecting said electron beam emitted from said electron gun in a sub-scanning direction, based on said shape data of said predetermined pattern;

adjusting an alternating bias signal, having a specific frequency, according to said shape data of said predetermined pattern;

superposing said alternating bias signal on said second input signal;

scanning said electron beam emitted from said electron gun by deflecting it in a main-scanning direction, while scanning said electron beam, emitted from said electron gun, by deflecting it in said sub-scanning direction according to said second input signal on which said alternating bias

signal is superposed, so that said electron beam irradiated onto said substrate depicts said predetermined pattern;

developing said resist film on said substrate depicted in said scanning step, so as to acquire a mother die having a predetermined structure;

applying an electroforming processing to said mother die having said resist film developed in said developing step, so as to form a metallic mold onto which said predetermined structure is transferred; and

molding said optical element having said predetermined structure by means of said metallic mold.

19. The optical element of claim 18, said method further comprising the step of:

etching said substrate developed in said developing step.

20. An electron beam depicting apparatus for depicting a predetermined pattern on a substrate by irradiating an electron beam onto said substrate, comprising:

an electron-beam irradiating section to irradiate said electron beam onto said substrate;

an electron-beam deflecting section to deflect said electron beam irradiated from said electron-beam irradiating section;

a storage section to store shape data of said predetermined pattern; and

a controlling section to control said electron-beam irradiating section and said electron-beam deflecting section, based on said shape data of said predetermined pattern stored in said storage section;

wherein said controlling section includes:

a first-signal generating circuit to generate a first signal for deflecting said electron beam in a main-scanning direction;

a second-signal generating circuit to generate a second signal for deflecting said electron beam in a sub-scanning direction;

an alternating-bias signal adjusting circuit to adjust an alternating bias signal having a specific frequency; and

an alternating-bias signal superposing circuit to superpose said alternating bias signal on said second signal.

21. The electron beam depicting apparatus of claim 20,

wherein said shape data of said predetermined pattern, stored in said storage section, include dose distributing information, which are defined as dose distributions corresponding to each of scanning positions on said substrate.

22. The electron beam depicting apparatus of claim 20,

wherein said alternating-bias signal adjusting circuit adjusts an amplitude of said alternating bias signal in response to said shape data of said predetermined pattern.

23. The electron beam depicting apparatus of claim 22,

wherein said predetermined pattern is a diffraction structure constituted by a plurality of blazed diffraction gratings; and

wherein said alternating-bias signal adjusting circuit adjusts said alternating bias signal so that said amplitude of said alternating bias signal varies corresponding to a sloped area and an edge portion of each of said blazed diffraction gratings.

24. The electron beam depicting apparatus of claim 23,

wherein said alternating-bias signal adjusting circuit adjusts said amplitude of said alternating bias signal to a first amplitude value in a vicinity of said edge portion, while said alternating-bias signal adjusting circuit adjusts said amplitude of said alternating bias signal to a second amplitude value in a vicinity of a center of said sloped area; and

wherein said first amplitude value is smaller than said second amplitude value.

25. The electron beam depicting apparatus of claim 24,

wherein said controlling section also adjusts a deflection pitch, with which said electron beam is deflected in said sub-scanning direction according to said second signal, corresponding to said amplitude of said alternating bias signal adjusted by said alternating-bias signal adjusting circuit.